

Goal: Understanding homeostatic regulatory mechanisms in humans

Learning outcomes: Students should be able to:

1. Demonstrate conceptual understanding of a negative feedback loop.

Summative Assessment:

1. You're a physician. A patient presents with high body temperature, sweating, weight loss, high blood pressure, low thyroid-releasing hormone (TRH), high thyroid stimulating hormone (TSH), high levels of functional thyroid hormone (T3, T4). You suspect a hypersecreting tumor unresponsive to negative feedback. Determine the location of the tumor. (ANALYZE)
 - a. Hypothalamic tumor secreting TRH
 - b. Anterior pituitary tumor secreting TSH
 - c. Thyroid gland tumor secreting T3 and T4

2-4. The sensor(s) for T3 and T4 in the above example are located in:

2. Hypothalamus true/false
3. Anterior pituitary true/false
4. Thyroid hormone true/false

Formative Assessment:

1. Which of the data sets (1-3) representing the relationships between luteinizing hormone (LH) and testosterone (T) indicate negative feedback regulation of LH by T in normal men? (EVALUATE)
 - a. 3 only, no other option
 - b. Both 1 and 2
 - c. 2 only, no other option
 - d. Both 1 and 3

1				2				3			
<u>LH</u>	<u>T</u>	<u>LH</u>	<u>T</u>	<u>LH</u>	<u>T</u>	<u>LH</u>	<u>T</u>	<u>LH</u>	<u>T</u>	<u>LH</u>	<u>T</u>
41	120	48	150	59	80	45	125	43	1800	59	2599
45	310	38	460	47	380	56	670	48	2080	64	2770
44	630	66	830	43	1160	31	630	55	2317	50	2150
32	1160	48	1220	27	1310	34	2250	23	1215	41	1451
28	1250	28	1350	32	1860	47	1930	37	1550	33	1452
15	1400	20	1510	48	1590	43	2670	29	1339	25	890
18	1370	24	1560	54	1730	63	1610	18	680	16	623
22	1300	13	1420	47	1040	46	2690	13	310	11	270
6	1420	6	1680	52	1910	42	2230	6	120	8	136
13	1800	9	2280	36	790	49	1390	9	140	10	255
6	1850	11	1910	34	2520	44	2370	12	277	7	128
8	1700	9	1790	60	1850	48	2560				
6	2560	6	2380	43	1440	45	1350				
8	2800	7	2700	46	1710	42	2720				
6	2510	6	1920								